

Work Order ID 71182

Thursday, June 23, 2011 11:16:36 AM



Page 1

Item ID:	D6104-007	Accept		Setup	Start	
Revision ID:					Stop	
Item Name:	Round Billet, 17-4					
Start Date:	6/23/2011	Start Qty:	12.00	Cust Item ID:		
Required Date:	7/5/2011	Req'd Qty:	12.00	Customer:		
Reference:						

Approvals:	Process Plan:	<u>CL</u>	Date:	<u>11/06/23</u>	Tooling:		Date:		Run	Start	
	QC:		Date:		SPC (Y/N):		Date:			Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D6104	Rev B								

100		0.00							
	PURCHASING								
Purchasing	Memo	0.00							
Purchasing	Issue P/O: <u>14367</u>								

☐ a) Description: S.S round billet ☐ b) Ø4.50" x 5.10" long ☐ c) Tolerance on all dimensions are +0.030"/-0.000" ☐ d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630) ☐ e) One blank makes 2 parts ☐ f) Material certification required

CL 11/06/24 (12)

110		0.00							
	Receive & Inspect for Damage & Mat'l Certs								
Packaging	Memo	0.00							
Packaging	Ensure material certification is attached								

12/7/8 (12)

120		0.00							
	QC6- Inspect dimensions to drawing								
QC	Memo	0.00							
Quality Control	Ensure Material certification comply to Dwg D6104								

CL 11/07/08

12 ~~0~~

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

[illegible]

Page 2

[illegible][illegible]

Stop

[illegible][illegible]

Customer:

Required Date: 7/5/2011 Req'd Qty: 12.00

Run Start

[illegible]

Stop

[illegible]

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

**Insp.
Stamp**

MR 11/07/08

[illegible]

Packaging

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QC

Memo

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Quality Control

11/7/11 *[Signature]*
ME 11-07-08

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Thursday, June 23, 2011 11:16:34 AM

Page 1

Work Order ID: 71182

Parent Item: D6104-007

Parent Item Name: Round Billet, 17-4





Start Date: 6/23/2011

Required Date: 7/5/2011

Start Qty: 12.00

Required Qty: 12.00

Comments: IPP A: ☐01.05.08☐New Issue EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6104-007P  17-4 SS Roundbar 4.50"OD		Purchased	No			110	Each	0.0000	 1	12		6/27/8	(12)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

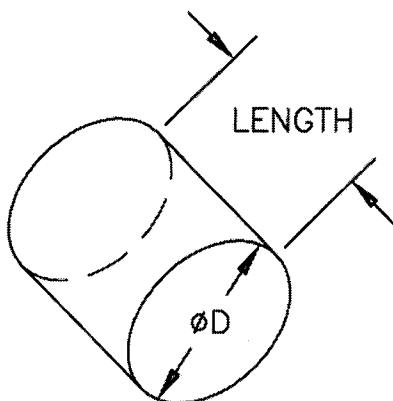
NOTE: Date & initial all entries



DESIGN <i>[Signature]</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED
02.11.29 *[Signature]*

SPECIFICATION CONTROL DRAWING



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 71182
CL 11/06/23
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO.

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO14367**

Purchase Order Date 6/24/2011

PO Print Date 6/24/2011

Page Number 1 of 2

Order From :

VC-MET001

METAUX CASTLE

A.M. CASTLE & CO. (CANADA) INC. - BOX B9204 PO BOX 9100

TORONTO, ON M4Y 3A5

CA

Contact Name

Vendor Phone

514 694 9575

Vendor Fax

514 695 3281

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

Tax Resale Nbr

10127-2607

Terms

Net 30

Currency

CAD

FOB

Destination-Collect

Ship To :

DART AEROSPACE LTD

1270 ABERDEEN

HAWKESBURY, ON K6A 1K7

CANADA

FAKED
6/24/2011

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	D6103-003P	round alum billet	7/11/2011 Yes	✓ 16.00 Each	Yours ppd <i>Paid 7/8</i>	\$65.0000	\$1,040.00
		Special Inst: AS PER DWG D6103 REV. B B71178 MATERIAL: 7075-T7351 AS PER QQ-A- 225/9 SIZE: 3.500" X 12.500" LONG TOLERANCE ON ALL DIMENSION ARE +0.030"/-0.000"					
2	D6104-005P	17-4 SS Roundbar 4.00"OD	7/11/2011 Yes	✓ 12.00 Each	Yours ppd <i>Paid 7/8</i>	\$76.0000	\$912.00
		Special Inst: AS PER DWG D6104 REV. B B71179 MATERIAL: 17-4PH AS PER AMS 5643 OR AISI 630 SIZE: 4.00" X 5.10" LONG TOLERANCE AS ABOVE					
3	D6104-007P	17-4 SS Roundbar 4.50"OD	7/11/2011 Yes	< 12.00 Each	Yours ppd	\$80.0000	\$960.00

PO Instructions:

PLEASE ADVISE PRICES \$\$\$\$\$\$\$\$\$\$

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

Change Nbr:

1

Change Date: 6/24/2011



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO14367**

Purchase Order Date 6/24/2011

PO Print Date 6/24/2011

Page Number 2 of 2

Order From :

VC-MET001

METAUX CASTLE
A.M. CASTLE & CO. (CANADA) INC. - BOX B9204 PO BOX 9100
TORONTO, ON M4Y 3A5
CA

Contact Name

Vendor Phone

514 694 9575

Vendor Fax

514 695 3281

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

Tax Resale Nbr

10127-2607

Terms

Net 30

Currency

CAD

FOB

Destination-Collect

Special Inst: AS PER DWG D6104 REV. B
B71182
SIZE: 4.50" X 5.10" LONG
MATERIAL & TOLERANCE AS ABOVE

PO Total:

\$2,912.00

MATERIAL CERTIFICATION
REQ'D UPON DELIVERY

PO Instructions:

PLEASE ADVISE PRICES \$\$\$\$\$\$\$\$\$\$\$\$

Change Nbr:

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Change Date:

6/24/2011

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP

Page 1 of 1

Shipment No:880990

Ship From: A. M. Castle & Co. (Canada) Inc. MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 06-JUL-2011	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOULIN		BOL No 880990-2	

Shipment Details	Final Destination Branch - MON
-------------------------	---------------------------------------

Order No	Line No	Item No	Description				
1553887	3	14998.MO	4.5000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643				
Purchase Order No		Part Number		Ordered Qty		Invoice Qty	
14367		YOUR ITEM NUMBER: D6104-007		12 PCS		12 PCS	
Details							
Delivery No.	Mill	Heat Number	Mech Id	PCS	Width (IN)	Length (IN)	Shipped Qty(LBS)
84387310		7YK3		12			283.71

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:	Date:
--	-------

Castle Metals FP

HEAT NUMBER 7YK3
MECHANICAL ID _____
ITEM CODE 14998
LOT NUMBER _____
PO NUMBER 88655
RECEIPT DATE 3-8-2011
SUPPLIER NAS
SPECIFICATION _____
LCS NO
COMMENT _____
APPROVED DL



NORTH AMERICAN
STAINLESS

METALLURGICAL TEST REPORT

6870 Highway 42 East
Ghent, KY 41045-9615
(502) 347-6000

Certificate: 624694 05 Mail To: Ship To: Date: 3/01/2011 Page: 1 Of 1
A.M. CASTLE AND COMPANY A.M. CASTLE AND COMPANY
3400 NORTH WOLF ROAD 3400 NORTH WOLF ROAD
FRANKLIN PARK IL 60131 FRANKLIN PARK IL 60131
Customer: 0032 001 Finish: Hot Finish
DIA/Thk: 4.5000 in
NAS Order: LN 69062 3 Leg Length: 144.00 in
Your Order: 88655 Corrosion:
Item Code: 14998

PRODUCT DESCRIPTION:

AMS 2303E, AMS 5643R
Round Bar, Hot Rolled, Annealed, Rough Turned
UNS S17400; EN 10204 3.1B, ASTM A484/08
ASTM A564/04 ASME SA564-07

REMARKS:

COMPLIES W/REQUIREMENTS OF DFARS EU DIRECTIVE 2002.95.
EC. ROHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG IN USA
FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight
BD58425	652	BD58478	2680						

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan)

Heat	Supplier #	CM	C	CB	CO	CR	CU	MN	MO	N	NI	P
7YK3		US	.036	.249	.08	15.28	3.28	.57	.13	.032	4.46	.025
			S	SI	TA	TI						
			.0081	.63	.0050	.0020						

MECHANICAL PROPERTIES

	l d o i c r	HB No.	Ferr %	TS-C KSI	YS-C KSI	El-C %	RA-C %	RC-C No.
BD58425	R L	341.0	.50	199.52	172.99	11.65	40.69	40.0
BD58478	R L	341.0	.50	199.52	172.99	11.65	40.69	40.0

NAS hereby certifies that the analysis on this certification is correct and the material meets the specifications stated.

QC ENGINEER

ERIC HESS